

ABSTRACT

A system for producing Erbium Oxide thin films with increased photoluminescence. The system includes a depositing stage for forming Erbium Oxide molecules by reacting Erbium sputtered atoms with O₂ in a gas phase and creating the Erbium Oxide thin film by depositing the Erbium Oxide molecules on a substrate coated with Silicon Oxide. The system further includes an annealing stage for annealing the Erbium Oxide thin films by utilizing a low temperature treatment for a specified amount of time and temperature followed by a high temperature treatment for another specified amount of time and temperature, wherein the crystallinity of the thin films has improved.